

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Original) A device for driving an endless belt, comprising:
belt driving means positioned at one end of the belt and comprising a first roller for moving said belt;
at least one rotary body arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;
and
a second roller adjoining said first roller and contacting the belt at a side where said rotary body is positioned;
wherein said first roller and said second roller each have allowable eccentricity reduced to a range that does not effect a variation of a speed of the belt.
2. (Original) The device as claimed in claim 1, wherein said belt driving means further comprises a motor.
3. (Original) The device as claimed in claim 2, wherein dynamic balance is set up on a rotary portion of said motor and said first roller integrally.
4. (Original) The device as claimed in claim 3, wherein said first roller and a shaft of said first roller are molded integrally with each other.
5. (Canceled).
6. (Original) The device as claimed in claim 2, further comprising an eccentricity adjusting mechanism assigned to at least one of said first roller and said second roller.

7. (Original) The device as claimed in claim 6, wherein dynamic balance is set up on a rotary portion of said motor and said first roller integrally.

8. (Original) The device as claimed in claim 7, wherein said first roller and a shaft of said first roller are molded integrally with each other.

9. (Canceled).

10. (Original) A device for driving an endless belt, comprising:
belt driving means positioned at one end of the belt and comprising a drive roller for moving said belt;

at least one rotary body arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;
and

a stationary guide body adjoining said drive roller and contacting the belt at a side where said rotary body is positioned;

wherein said drive roller has allowable eccentricity reduced to a range that does not effect a variation of speed of the belt.

11. (Original) The device as claimed in claim 10, wherein said belt driving means further comprises a motor.

12. (Original) The device as claimed in claim 11, wherein dynamic balance is set up on a rotary portion of said motor and said drive roller integrally.

13. (Original) The drive as claimed in claim 11, wherein said drive roller and a shaft of said drive roller are molded integrally with each other.

14. (Original) The device as claimed in claim 13, wherein dynamic balance is set up on a rotary portion of said motor and said drive roller integrally.

15. (Canceled).

16. (Canceled).

17. (Previously Presented) An apparatus comprising:

belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor.

18. (Original) The apparatus as claimed in claim 17, wherein torque ripples generated by said outer rotor coreless motor are set at a spatial frequency close to a maximum value in an allowable, torque ripple spatial frequency range at a low frequency side, which does not effect image quality.

19. (Previously Presented) An apparatus comprising:

belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor;

wherein torque ripples generated by said outer rotor coreless motor are set at a spatial frequency close to a maximum value in an allowable, torque ripple spatial frequency range at a low frequency side, which does not effect image quality;

wherein said outer rotor coreless motor comprises an outer rotor functioning as said drive roller at the same time.

20. (Previously Presented) The apparatus as claimed in claim 19, wherein the outer rotor comprise an encoder disk on which is at least one of timing marks for sensing a signal for rotation control and a mark for sensing a signal that switches a phase of a current to be fed to each of different coil phases.

21. (Original) The apparatus as claimed in claim 20, wherein said mark functions as a mark for sensing a start signal output for each rotation at the same time.

22. (Previously Presented) An apparatus comprising:
belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor;

wherein torque ripples generated by said outer rotor coreless motor are set at a spatial frequency close to a maximum value in an allowable, torque ripple spatial frequency range at a low frequency side, which does not effect image quality;

wherein said outer rotor coreless motor comprises an outer rotor that is formed integrally with said drive roller.

23. (Previously Presented) The apparatus as claimed in claim 22, wherein the outer rotor comprises an encoder disk on which is at least one of timing marks for sensing a

signal for rotation control and a mark for sensing a signal that switches a phase of a current to be fed to each of different coil phases.

24. (Original) The apparatus as claimed in claim 23, wherein said mark functions as a mark for sensing a start signal output for each rotation at the same time.

25. (Previously Presented) An apparatus comprising:
belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor;

wherein torque ripples generated by said outer rotor coreless motor are set at a spatial frequency close to a maximum value in an allowable, torque ripple spatial frequency range at a low frequency side, which does not effect image quality;

wherein said outer rotor coreless motor is driven such that timings for feeding currents to coils of different phases substantially do not overlap each other when a flux density of a bore magnetic field is substantially constant.

26. (Previously Presented) The apparatus as claimed in claim 25, wherein the outer rotor comprises an encoder disk on which is at least one of timing marks for sensing a signal for rotation control and a mark for sensing a signal that switches a phase of a current to be fed to each of different coil phases.

27. (Original) The apparatus as claimed in claim 26, wherein said mark functions as a mark for sensing a start signal output for each rotation at the same time.

28. (Previously Presented) An apparatus comprising:

belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor;

wherein torque ripples generated by said outer rotor coreless motor are set at a spatial frequency close to a maximum value in an allowable, torque ripple spatial frequency range at a low frequency side, which does not effect image quality;

wherein the outer rotor comprises an encoder disk on which is at least one of timing marks for sensing a signal for rotation control and a mark for sensing a signal that switches a phase of a current to be fed to each of different coil phases.

29. (Original) The apparatus as claimed in claim 28, wherein said mark functions as a mark for sensing a start signal output for each rotation at the same time.

30. (Previously Presented) An apparatus comprising:

belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor;

wherein said outer rotor coreless motor comprises an outer rotor functioning as said drive roller at the same time.

31. (Previously Presented) The apparatus as claimed in claim 30, wherein the outer rotor comprises an encoder disk on which is at least one of timing marks for sensing a signal for rotation control and a mark for sensing a signal that switches a phase of a current to be fed to each of different coil phases.

32. (Original) The apparatus as claimed in claim 31, wherein said mark functions as a mark for sensing a start signal output for each rotation at the same time.

33. (Previously Presented) An apparatus comprising:
belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor;

wherein said outer rotor coreless motor comprises an outer rotor that is formed integrally with said drive roller.

34. (Previously Presented) The apparatus as claimed in claim 33, wherein the outer rotor comprises an encoder disk on which is at least one of timing marks for sensing a signal for rotation control and a mark for sensing a signal that switches a phase of a current to be fed to each of different coil phases.

35. (Canceled).

36. (Previously Presented) An apparatus comprising:

belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor;

wherein said outer rotor coreless motor is driven such that timings for feeding currents to coils of different phases substantially do not overlap each other when a flux density of a magnetic field is substantially constant.

37. (Previously Presented) The apparatus as claimed in claim 36, wherein the outer rotor comprises an encoder disk on which is at least one of timing marks for sensing a signal for rotation control and a mark for sensing a signal that switches a phase of a current to be fed to each of different coil phases.

38. (Original) The apparatus as claimed in claim 37, wherein said outer rotor coreless motor comprises an outer rotor that is formed integrally with said drive roller.

39. (Previously Presented) An apparatus comprising:

belt driving means positioned at one end of the endless belt, which is one of at least an intermediate image transfer belt and a sheet conveying belt, and comprising a drive roller for moving said belt; and

at least one photoconductive drum arranged side by side in a direction of movement of the belt and pressed against said belt either directly or indirectly to be thereby rotated by said belt;

wherein at least one of said drive roller and said photoconductive drum is directly driven by an outer rotor coreless motor;

wherein the outer rotor comprises an encoder disk on which is at least one of timing marks for sensing a signal for rotation control and a mark for sensing a signal that switches a phase of a current to be fed to each of different coil phases.

40. (Canceled).

41. (Previously Presented) An apparatus as claimed in Claim 34, wherein said mark functions as a mark for sensing a start signal output for each rotation at the same time.

42. (Previously Presented) The apparatus as claimed in Claim 37, wherein said mark functions as a mark for sensing a start signal output for each rotation at the same time.

43. (Previously Presented) The apparatus as claimed in claim 39, wherein said mark functions as a mark for sensing a start signal output for each rotation at the same time.